

to affect in any way the amount which he is entitled to charge for making his second report.

In my opinion the fee which a physician is entitled to charge for furnishing a report in regard to the physical condition of a patient is somewhat in proportion to the amount of the insurance sought as well as to the medical complications of the particular case. It is obvious that the responsibility assumed by him in expressing a written opinion upon which will depend a transaction involving \$50,000 is much greater than the responsibility which he assumes if the amount involved is only \$5,000.

There is a distinct difference between a formal written opinion and a casual statement to a patient with regard to his condition. Not only is there obviously a greater amount of work and care involved in the preparation of a written opinion, but also the opinion itself when prepared deserves and receives greater consideration and weight than if it were merely a verbal statement of conclusions. For both of these reasons a physician is entitled to a higher compensation for a detailed written report to an insurance company than he would normally charge to his patient for a verbal expression of opinion.

There is also a great difference of weight attributable to an opinion based upon an examination which perhaps was made a long time before and of which only a meagre record was kept, and an opinion based upon the fullest possible records. My own experience has been in all cases which I have been called upon to examine to get all the ascertainable facts, including the results of X-ray photographs, laboratory aids, and so forth, and having done so to preserve complete records thereof for future reference. I think you will agree that a written opinion based upon the records of a series of past examinations may at times have even more importance than that which attaches to the ordinary examination of the applicant by the insurance company's physician.

When the amount of insurance sought by an applicant is high it is proper for the company to require, and some companies do require, not one, but several examinations of the applicant. It is also eminently proper that the company should in such cases take especial pains to ascertain the applicant's medical history. But it is also proper that for the increased protection secured through obtaining the applicant's medical history from those who are in a position to furnish it, the insurance company should pay in proportion to the value of the protection so secured.

The assumption on the part of insurance companies that for some unexplained reason they are entitled to obtain such information gratuitously or at a nominal expense, is particularly unwarranted in view of the exorbitant prices which they willingly and cheerfully incur for the purpose of obtaining new business. If the managing officers of insurance companies were half as solicitous about securing for those whose interests are committed to their care adequate protection against the assumption of improper risks as they are about in-

creasing the amount of outstanding business, they would never begrudge the payment of an adequate compensation for the kind of information which is indispensable for proper protection. The fact is, that one of the crying evils about the business of life insurance in America is that the getting of new business is compensated out of all proportion to the work done, whereas the far more important work of protecting the company and its stockholders against the taking of improper risks receives altogether too little compensation.

Government regulation of insurance companies was absolutely necessary before they became in any way the benefit to humanity that they pretended to be and now are when their funds are honorably and wisely administered. There remains even now one form of security and protection of their policy holders in more extended medical investigation of risks that they are not ready to pay for though still lavishly spending for exaggerated increase in their business.

Very truly yours,

PHILIP KING BROWN.

THE USE OF PURE CARBOLIC ACID IN SELECTED CASES OF CHRONIC MIDDLE EAR SUPPURATION.*

By G. W. WALKER, M. D., Stockton.

The use of pure carbolic acid in the treatment of certain selected cases of chronic suppurative ear affections, came into my mind because of my having been enthusiastic in the use of it in suppurations in, and about joints, and pus pockets of any part of the body, when in general practice before I limited my practice to a specialty.

Phelps of New York,¹ in 1900 described the use of pure carbolic acid in joint suppurations. My use of it in general practice came from his description. He applied it to the walls of a cavity from which the pus had been evacuated, and followed it in two minutes by absolute alcohol to check the action of the phenol.

In treating chronic ear suppurations, of course, first: The cause for ear trouble existing in the nose or throat, must be most carefully corrected and careful cleansing of the external canal done, that no obstruction to the pus escape be left; in fact, the usual care necessary there should be given—that I will not delineate now, but proceed to describe a method of using pure carbolic acid, not heretofore described in existing literature, on treatment of chronic ear suppuration, so far as I could find. In many cases we have felt called upon to advise mastoid operation, but patients have been reluctant to consent to it.

In a certain class of cases of suppuration, where sequestra exist, or where large masses of caseation or cholesteatoma are present in inaccessible localities, I do not have hope of stopping suppuration by this method, but we can always use this treatment whether we can get consent for operating or not, and in many instances, successfully, that looked like only surgical cases before. In my first case, in which I used it, the patient, a man fifty-two years

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of age, referred by Dr. Oliver of Stockton, Calif., April 25th, 1914, gave a history of a discharging ear in infancy. Since then the ear has discharged freely at intervals, and between such intervals of free discharge, some slight discharge, pus always ill-smelling. Upon examination I found the external canal of the left ear closed by swelling of the superior wall, with pus discharging as much as it could, when pressure was great enough. Upon holding upper wall up, pus discharged freely. Nose and throat examination showed extreme septal deflection, tonsils large and red, post pharyngeal wall rough and covered by mucus from above. Patient seemed in great pain and had a distressed look. I put in a wick of gauze to separate walls of external canal, and advised that radical mastoid operation would probably be necessary. On the next day the external canal was open from the pressure of the wick of gauze, which I had inserted the day before, and I could clean it out, and see that the pus was coming from a fistula, in the upper wall of the canal, just against the drum head. With a probe I could detect that there was a cavity about the size of an English walnut, or nearly as big, which seemed to be above and behind the tympanum. This I washed out with antiseptics, but the pus kept up as freely as ever, but the patient was not in pain to the same extent as before. After eleven days' use of antiseptics and care of this pus pocket, I removed the tonsils, and one week later I did submucous resection of the nasal septum; but after thirty-one days more daily care of this case, the pus was still flowing freely from this cavity and had a most foul odor, and the mastoid was tender with more or less pain, and headache on that side of the head, and I only failed to do a tympano-mastoid operation because I could not get the patient's consent. Then through the fistula with a long small cannula I injected the cavity full of melted crystals of carbolic acid and after two minutes I irrigated it very freely with absolute alcohol. For the following three or four days there was a gleet-like discharge, during which time I kept the external canal lightly packed with gauze, and the discharge stopped entirely. He gained twenty-five pounds in weight—all subjective symptoms ceased. The fistula closed and has never reopened in more than two years that I have observed the case. He thinks that he is very fortunate that he never consented to a radical mastoid operation.

Case two: Frank R. of Woodsboro, California, age twenty-three years, a dairyman, consulted us on March 11, 1914, because of chronic ear suppuration. He had been treated at various times by a competent specialist, but the pus kept discharging as it had done, since an acute suppuration had begun two years before, with acute exacerbations whenever he had an acute naso-pharyngeal inflammation. I removed tonsils and adenoids, and did septum resection a week later. His perforation in the drum head was just below and back of the center. After a month of care in which the pus discharge kept up, I injected through the perforation pure carbolic acid followed by alcohol. I used careful pressure in injecting the phenol by carefully and rather tightly packing around the cannula, before pressing the piston of the syringe. The blennorrhea kept up for about four days, during which I kept the external canal packed with sterile gauze,

and within two weeks the perforation closed entirely and never reopened.

Case three: Mr. W. J. P. of Tracy, California, age thirty years, consulted us on March 25, 1914. He gave a history of chronic ear suppuration which he thought had lasted about twenty years. Had polypi removed at various times—I think three or four times, before he saw me, and consulted us now because a polyp was protruding from the external canal; heard watch only on contact. My notes say he needs tonsil and adenoid operation and septum resection. Did the tonsil and adenoid operation April 18. Removed polyp April 24, and used nitric acid on the base of it, completing the removal of what I had left. After about two weeks' treatment at intervals with the nitric acid, during which time pus was discharging as it had for years, I used pure carbolic acid followed by alcohol. Pus discharge ceased, perforation never closed, as he had very little drum membrane left, but tympanum cicatrized and there has been no further pus discharge and no reoccurrence of polyp.

Case four: Mrs. J. W. H., age forty-one, referred by Dr. F. W. McKibbin of Oakdale, California, consulted us on October 25, 1914; gave a history of chronic suppurating ear for fifteen years. Perforation near top of right drum head from which a foul-smelling pus was discharging. She had tenderness over the mastoid, and a radical operation had been suggested for her. I removed tonsils and the right middle turbinate on the 11th of November and gave her case the usual care until January 1 following, when, as pus was still discharging about the same as before, I injected pure carbolic acid through the perforation, using pressure to cause it to reach as remote parts as possible, following with absolute alcohol. Blennorrhea following for a few days, I kept canal packed with sterile gauze for about two weeks and perforation closed entirely, hearing gained more than 100%, and the patient was much pleased, as she had escaped mastoid operation.

Case five: M. S. of Lodi, California, sixteen years of age, chronic suppuration of both ears, right for six years and left two. Right ear had a large perforation, simply a crescent of membrana tympanica remaining. Pus from right malodorous. Perforation in left is located in lower posterior quadrant, but not large. Tonsils and adenoids had been removed five years before. After cleansing ear canal I used phenol with pressure through perforation and followed by alcohol. Discharge ceased to be pus at once, and had stopped entirely within about three days following, soon after which time the ear with the larger perforation became dry and cicatrized, and the one with the smaller perforation closed entirely, in which ear the hearing seemed to return to the normal, and hearing for the watch increased 30% in the one having the large perforation.

Case six: Mrs. J. N. C. of Stockton, California, age thirty-four, consulted us on March 16, 1914, and gave history of ear discharge in infancy and at intervals through life. Large central perforation in left membrana tympani. Tonsils hypertrophied, septum somewhat deflected. Removed tonsils May 18, 1914. Cleansed ear canal carefully, but pus kept discharging until July 21, when I used the phenol-alcohol treatment. No pus in four or five days, ear dry, perforation remains open.

Case seven: Chas. C., age thirty-five, a miner of Campo Seco, California, consulted us on July 16, 1915. History: Pus has discharged from left ear since childhood. Septum greatly deflected, tonsils hypertrophied, mastoid tender. Did septum resection and removed left middle turbinate July 19, 1915, and eight days later removed tonsils and cleansed ear, and patient went home and came to see us again on December 6, when I used phenol-alcohol through the perforation, located high up posteriorly, then lightly packed canal a few days

and pus discharge ceased and has not resumed since. Perforation closed.

Case eight: W. D. T., age forty-eight, referred by Dr. E. V. Falk of Modesto, California, September 16, 1915. Gave history of pus discharging freely at intervals and somewhat all along throughout life, as far as his memory went. Left membrana tympani almost entirely gone, malleus and incus gone. Pus very ill-smelling. Had at some time in life had a tonsillotomy, septum deflected and in contact with turbinates. I did a septum resection September 23, 1915, and tonsillectomy ten days later. Used phenol-alcohol January 29, 1916, as suppuration still continued in spite of all other treatment. February 2, no pus, ear dry afterward and cicatrized.

I have used this treatment in many other cases successfully, not here reported, but did not report them, as they were cases in which suppuration would have probably ended with ordinary treatment, advised in any text-book on ear diseases, or too recent to speak of as cured. Politzer² says, when foul smelling pus persists, after the use of cleansing and antiseptics have failed, the case demands tympano mastoid operation. I recognize that much has been done in the past, by ordinary methods of cleansing the tympanum through the external canal, or through the eustachian tube, and the use of weak solutions of antiseptics, but the use of phenol pure gives us the benefit of a most powerful antiseptic which does not cauterize except the epithelium. The epithelium is reproduced, and no permanent destruction has been done by the phenol. In radical mastoid, such as some of my cases would have demanded under other treatment, more destruction of tissue has to be had than with the phenol, to succeed, and that is followed by thicker cicatrices. When the oval and round windows can be left without thick cicatrices covering them, much more hearing can be retained than if they are covered deeply by scar. If this and all ordinary efforts will not succeed, of course, do a radical and do it before a brain abscess or sinusthrombosis, of otitic origin has formed. Of course, phenol pure has been used during the radical operation and why? To make sure, when some pyogenic surface might have been missed. If phenol can be gotten to the surface, without bone cutting, many cases can be treated which the patient would not have consented to have treated through a bone opening, and if it can be successfully done through a perforation, or a fistula, or an opening you may make with a knife in the membrane, where the perforation opening might not be just what is wanted, less destruction will have been done and the patient's reluctance can be easier overcome than for a radical mastoid. The hearing is always made better, never diminished.

When pure carbolic acid is introduced into the middle ear, there is first a burning pain for about fifteen seconds; then the burning disappears, and does not reappear for a few minutes, and as the alcohol used within two minutes checks the action of the carbolic acid, the after burning is not severe.

Care must be exercised that any surplus of carbolic acid, which may have been used, is not allowed to run down the neck, as it causes un-

necessary pain. A large pledget of cotton, saturated with alcohol, held just under the external ear by an assistant, will catch any flow of carbolic acid and prevent burning. Any carbolic acid that has gotten into the external canal can be neutralized at once, instead of waiting the two minutes for the effect in the middle ear, by simply mopping out the external canal with a pledget of cotton saturated in alcohol, which had been prepared beforehand, ready for this emergency.

It does not produce violent reaction in any case, and I have used it in a great many more cases than here reported.

As I said in the beginning of this paper, I think the cases for treatment by this method should be properly selected.

Discussion.

D. H. Trowbridge, M. D.: Dr. Walker's treatment is undoubtedly new. The use of pure carbolic acid in suppurative conditions, however, is not new. A great many of you will remember that Dr. Powell, now deceased, of the Post Graduate Hospital in New York, used carbolic acid 95% pure followed by alcohol for almost everything. In fact he used it so extensively that we dubbed him "Carbolic Acid Powell." It is undoubtedly true that in a great many cases carbolic acid does good work. It is also undoubtedly true that it has not been used very much in the treatment of suppurative aural conditions.

On being informed by your secretary that I was to discuss this paper, I endeavored to look the subject up, but found very little in the literature regarding same. I took the trouble to write to some of my colleagues on the subject, and I find that none of these men have used carbolic acid in suppurative conditions of the ear to any extent. So I feel that Dr. Walker is practically a pioneer in the use of carbolic acid, and I think he deserves a great deal of credit for having the nerve to inject as much carbolic acid as he does into the middle ear and mastoid cavity. I would like to ask how much he does inject? He speaks of one case in which the cavity was as large as a walnut. I should like to ask if he filled this full of the carbolic acid? As far as the treatment is concerned, personally I know nothing about it, as I have never used it, but as I stated before none of the doctors from whom I received letters have ever used the treatment to any extent.

E. C. Sewall, M. D.: This interesting paper of Dr. Walker's shows careful work and observation. Carbolic acid has played an important part in the surgery of the past and may be relied upon in many conditions.

If I understood Dr. Walker correctly in his report of the case, in which he found a cavity above the level of the superior wall, of the external canal, as large as a walnut, and if I know anything about the size of walnuts, I think the doctor is too modest in claiming the cure of a "middle ear" condition.

Regarding the history of the use of carbolic acid, Lord Lister used pure carbolic acid in the treatment of suppurating wounds. Seneca Powell was the first to demonstrate to his astonished colleagues that he could wash his hands in pure carbolic acid, followed by an alcohol bath, which removed every evidence of the carbolic blanching.

Later Phelps, as Dr. Walker stated, used pure carbolic acid followed by alcohol. In regard to its use in ear disease, Wendell Phillips as published in the New York Medical Record, I think some time in the '80's, used this treatment over a long period for chronic suppuration of the middle ear. He even went so far as to introduce it into the attic with a syringe. He later abandoned the treatment, possibly because such disease usually requires surgical treatment. I cannot get Dr. Walker's reasoning in

regard to caries of the bony parts, and cholesteatoma which play such important parts in the pathology.

I have a patient who had chronic purulent otitis of both ears and who filled them full of pure carbolic by mistake. He did not neutralize and was burned frightfully, the eschar extending even "through the eustachian tubes into the throat." He has recovered from his burns but still has his otitis purulenta.

H. B. Graham, M. D.: It is quite possible that carbolic acid may cure quite a number of cases of middle ear suppuration, and it is not anything very new, although it has not been practiced very much. Dr. Cross of San Francisco, a general practitioner, for fifteen years has used pure carbolic acid and a mixture of carbolic acid and balsam of peru, and makes in his laboratory a solution known as "healol" which he recommends very highly for chronic suppurative ear conditions. Possibly carbolic acid may cure a great many of these ears. We must remember we are dealing with a disease rather insidious in its action, and it requires a large amount of attention over a long period of time, in order to know the exact pathological condition present. The processes may have a syphilitic or tubercular basis, or be an extensive cholesteatoma, and the only evidence we have of the destruction going on is a slight intermittent discharge. This continues until we are faced with a meningitis, and we wake up to the seriousness of the situation.

This pathological condition must be eradicated. Even if we use carbolic acid, we can only wash the surface no matter how you do it. There is no possible way of knowing when you have or have not a case of cholesteatoma of the middle ear. I have washed the cases out, and later put the solution under the microscope without discovering the cholesterol crystals, and still have operated and found a cholesteatoma. I think it is a dangerous proposition to encourage a treatment of this character by the specialist, and place it in the hands of the general practitioner, in cases so dangerous to the life of the patient. I think it is far better for one to treat his case by operative measures than by conservative means, if it is a case that needs operation.

C. F. Welty, M. D.: Before starting this discussion I wish to say that a suppurating ear is not chronic until one year has elapsed.

The doctor reported cures in eight consecutive cases of chronic suppurative otitis media, by the injection of pure carbolic acid. In fact every case that he selected and treated was cured of the discharging ear. This is indeed revolutionary.

Dr. Walker further states that he puts the carbolic acid in the middle ear under pressure; again this is revolutionary. I have long been taught that no kind of solution should be put in the middle ear under pressure for various reasons. But when you come to carbolic acid, it does seem to be the limit; furthermore, to follow it with alcohol was well.

On the other hand, we must admit that alcohol and carbolic acid are both very good antiseptics and might destroy any kind of infection that they came in contact with, leaving a more healthy granulating surface than there was before the treatment. However, I am not ready to try the experiment and would consider it very dangerous.

The only way I treat chronic suppurative otitis media is by washing with the intra tympanic cannula, using principally 1-3000 bichloride solution and boracic acid solution, drying well afterwards. I have treated cases for months this way with irrigations every other day. I have finally come to the conclusion that in my selected cases I will not treat longer than three weeks, and if I do not have an appreciable betterment I will advise operation, and that operation is dependent upon the pathology found at operation. This brings me up to the pathology of chronic suppurative otitis media.

I can hardly recall a case of chronic suppurative otitis media, operated by myself, in which the pathology was of such a nature that it could not be demonstrated six or eight feet away. I do not recall a case in which the pathology was alone confined to the attic, and in fact these are the only cases that might be so treated, and they will not subside with single or multiple injections of carbolic acid or anything else. When we come to extensive caries, of the mastoid cells, that would hold half an ounce of fluid, or other cases of granulations covering the sinus, middle or posterior fossa, and not least, but last, cholesteatoma which does not yield to anything but the chisel. Again, tuberculosis, according to Doctor Phillips of New York, forms 12% of all such cases. None of these conditions will be brought to a cure by any form of treatment. The whole procedure seems so impossible to me that I would not consider it at all.

It is my firm conviction that treatment by various medicaments are more dangerous than operations. In fact I have seen in consultation that many more cases die from non-operative interference than have died from complications that developed during or following operation.

M. W. Fredrick, M. D.: Dr. Walker's paper has raised so much discussion that it must be either very good or very bad. As most of the discussion has been unfavorable, I feel that some one should say something in favor of the author, as what he is bringing forward may be for the better, even though we others have not used it. I would like to have the doctor describe his method somewhat more in detail, tell how he produces the pressure he speaks of, and, above all, how he selects his cases, as it is obvious that the method is applicable in a limited number of cases only.

Dr. G. W. Walker, M. D., closing discussion: I am glad my paper has been given so much attention. I will try to answer the questions. As to Phillips' article in the Medical Record in 1900, he does not mention the use of carbolic acid with the syringe. I know Dr. Phillips well and have done quite a little work under his instruction. He says he applied pure carbolic acid on an applicator or sprayed part to be treated. Speaking of Seneca Powell washing his hands in carbolic acid and then in alcohol, he did more than that, he filled his mouth with carbolic and followed it with alcohol, to demonstrate his lack of fear of it.

Dr. Graham speaks of Dr. Cross' method. I believe he did not use the alcohol, so that is not a similar method at all. He did not even use pure carbolic, but a mixture.

Dr. Sewall spoke of the man who poured it into his ear by mistake. Possibly the suppuration was in a place the carbolic never reached. It doubtless had no opportunity to cure his infection.

This treatment should not be used by the general practitioner. If he wants to use it, he should take quite a little special instruction in the treatment of ears before attempting to use the treatment. It should be handled by a specialist. When I was a general practitioner, I was not familiar enough with the anatomy of the ear, or of how to apply treatment, and I would have been afraid to use this remedy in that region, nor would I have wanted to wash out the ear with bichloride. However, washing out the ear with bichloride never produced the results that carbolic acid does. Washing with bichloride cannot offer as good effect, and we do not want to wash about the meninges with bichloride. No general surgeon wants to wash out a peritoneal cavity with bichloride, yet they do use carbolic acid in limited extent there.

When carbolic is used under pressure, I think it should be in the hands of a specialist who has some idea as to how much pressure should be used. I used an ordinary Record syringe with a cannula that I use for frontal sinus work. I pack around the cannula after it is in position, using gauze or cotton. The pressure used need not be very great,

in fact it should be only great enough to reach the level needed. Dr. Welty says he fears there is danger to life in using this method. We all know we have cases of chronic ear suppuration that need operation, and we are unable to obtain consent to an operation. We know the life must be endangered if we cannot get rid of the disease. My first case was brought about because I could not obtain consent to do a radical mastoid operation. Dr. Welty speaks of my using it through an incision in the membrana as if he thought I advised it in intact membranes, but of course not in such cases, but possibly some cases might need an opening in a better location for reaching affected areas.

Dr. Trowbridge asked how much carbolic acid I used in the first case reported. I used about 6 c.c. of carbolic. I used it until I filled the cavity, so all parts of the cavity could be reached, the top as well as other parts. There may be quite a few who may use it in every case of chronic middle ear suppuration, but a proper selection of cases will give best results. I think after you have treated a case for two or three weeks, or a month, and have fixed up the nose and throat without improving the aural condition, you can tell when to use this treatment best. Where there is a cavity about the attic or antrum from which pus comes, or even throughout the tympanum, you either have to operate, or else do as much for the patient as you can without an operation, and if you use this method you will often avoid a mastoid operation.

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UPON THE RADIOGRAPHIC DIAGNOSIS OF HYDRONEPHROSIS.*

By MARTIN KROTOSZYNER, M. D., San Francisco.

Until a few years ago pathological conditions of the kidney due to urine stasis in the renal pelvis were designated as hydronephrosis, of which, according to the character of the retention fluid, two main varieties, the aseptic and infected, form, were differentiated. The French school, upon Albarran's authority, accepted for the same conditions the terms uronephrosis and uropyonephrosis. Much diversity of opinion prevails in text books regarding the nomenclature of infected hydronephrosis. Many authors, most prominent among them Küster, comprise all renal infectious conditions, resulting in pus formation, and independent of their etiology, under the term pyonephrosis. Israel and his school, on the other hand, make a strict distinction between the term infected hydronephrosis, as the end product of aseptic urine stasis in the upper urinary tract, and that of pyonephrosis, which is to be reserved for the terminal stage of pyelo-nephritis, a condition due to hematogenous infection or some other inflammatory septic process. The same incongruity of nomenclature prevails with the term "Sackniere" of the Germans, which is used by some authors for the final stage of aseptic hydronephrosis, and by others for all varieties of retention tumors of the kidney, including pyonephrosis.

From the foregoing the conclusion is forced upon us that a clear conception of the underlying etiological

factors of renal dilatation is still lacking. The nomenclature and pathological classification of these conditions is, obviously, in need of revision and correction.

Relief, though, from this chaotic disparity of classification and nomenclature seems to be close at hand. For, while we formerly were merely able to diagnose a far advanced or palpable dilatation of the kidney, which, as a rule, was the end-product of a long standing pathological process of mechanical nature, we are, to-day, enabled to determine the various degrees of dilatation of the upper urinary tract from their incipient stages. This marked advance in our diagnostic armamentarium is, above all, due to the perfection of ureteral catheterization, a procedure which in trained hands, and carried out with the aid of the modern close vision cystoscope, is performed almost as easily, as aseptically, and as painlessly as catheterization of the bladder. It is, furthermore, due to the advent of the injected ureter-catheter, by the application of which the slightest anomalies of deviation and caliber of the ureteral tube are demonstrable on the plate. It is, finally, due to pyelography, which, if performed *lege artis* and under observation of due caution, represents a safe and exact diagnostic method. By the judicious and selective application of these diagnostic procedures we are, to-day, enabled to recognize incipient abnormalities of size and configuration of the hollow system of the upper urinary tract, which, if left alone, are known to result invariably in irreparable hydronephrotic lesions, and which, by proper means of prophylaxis and of timely measures of treatment, may be corrected or repaired. Thus the importance of the pyelographic study of mechanical lesions of the upper urinary tract becomes obvious.

It is not my object to discuss, in this connection, the indications, the technique and similar features of pyelography. I have, like others, reported, elsewhere, upon my personal experiences with the drawbacks and dangers of the method, and, since then, have tried to get along without its use, wherever the diagnosis could be established by means of less risky procedures. Meanwhile the technique of the method has been materially improved, as for instance by the use of less irritating and, at the same time, better shadow casting fluids (thorium nitrate solutions) and the indications for its applications have gradually become limited to such renal conditions, in which the diagnostic aid, derived from the method, would not be offset by undue risks to the patient. This is, though, particularly true of hydronephrotic lesions, where, on account of the dilatation of the renal pelvis, a certain amount of the shadow casting fluid can be injected without causing distress or injury, and in the early stages of which the diagnosis almost entirely depends upon the pyelographic recognition of the underlying cause. Thus, wherever, of late, I have applied pyelography in this type of cases, I have never observed on my patients untoward sequels of serious nature, except occasionally local pain, or a slight general reaction, characterized by a brief period of fever and malaise.

Indispensable for the correct interpretation of

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